CLAIMS

1. A router controlling congestion on links attached to the router, comprising:

a plurality of ports;

a first port of said plurality of ports for receiving a data packet;

a second port of said plurality of ports for transmitting said data packet;

a receiver to receive an incoming loss report message on said second port;

a first processor to determine loss of packets on selected ports of said plurality of ports;

a second processor to calculate, in response to said loss report and said loss of packets, a loss rate statistic;

a transmitter to transmit an outgoing loss report message through said first port, said outgoing loss report message containing a field having said loss rate statistic written therein.

2. The apparatus as in claim 1 wherein said first processor and said second processor are the same processor.

3. The apparatus as in claim 1 wherein said first processor and said second processor are different processors.

4. The apparatus as in claim 1 wherein said loss rate statistic is a largest loss rate determined by said router.

5. The apparatus as in claim 1 wherein said loss rate statistic is a time averaged loss rate.

6. The apparatus of claim 1, further comprising:

a linecard supporting at least one of said plurality of ports, said linecard having a linecard processor and a memory mounted thereon, said linecard processor computing said loss of packets.

7. The apparatus of claim 1, further comprising: said loss report is carried in a NAK packet.

8. The apparatus of claim 1, further comprising: said loss report message is transmitted by said router in response to the router receiving a loss report message from a down-stream router.

9. The apparatus of claim 1, further comprising: said loss report message is transmitted by said router in response to the router receiving a loss report message from a target receiver station.

10. The apparatus of claim 1, further comprising: said loss report message is periodically transmitted by said router.

11. The apparatus of claim 1, further comprising:

a central processor (CPU) forwarding engine, said CPU forwarding engine determining which port said loss report message is to be transmitted out through.

12. The apparatus as in claim 1, further comprising:

a central processor (CPU) control engine, said CPU control engine generating said loss report message.

13. A method for operating a router, comprising:

receiving a multicast group data packet at a first port;

transmitting a replica of said multicast data packet from a second port;

receiving an incoming loss report message on said second port;

computing a loss of packets on selected ports of said router;

calculating, in response said loss report and said loss of packets, a loss rate statistic;

transmitting an outgoing loss report message through said first port, said outgoing loss report message containing said loss rate statistic in a field of said outgoing loss report message.

14. The method of claim 13, further comprising:

choosing said loss rate statistic as a largest packet loss rate determined by said router.

15. The method of claim 13, further comprising:

choosing said loss rate statistic as a time averaged packet loss rate as determined by said router.

16. The method of claim 13, further comprising:

selecting said selected ports as members of a multicast group distribution tree.

17. The method of claim 13, further comprising:

determining a loss rate statistic which has not expired at "at least one", port of said router, where said at least one port includes all ports of a multicast group distribution tree of said multicast group;

writing said loss rate statistic into said outgoing loss report packet and before transmitting said loss report packet.

18. The method of claim 13, further comprising: transmitting said outgoing loss report packet as a NAK packet.

19. The method of claim 13, further comprising: transmitting said outgoing loss report packet in response to receiving said incoming loss report packet.

20. The method of claim 13, further comprising: transmitting said outgoing loss report packet periodically.

21. The method of claim 13, further comprising: transmitting said outgoing loss report message as a unicast message to the next upstream router capable of responding to said loss report message.

22. The method of claim 13 further comprising: transmitting said outgoing loss report message as a multicast message.

23. A router, comprising:

means for receiving a multicast group data packet at a first port;

means for transmitting a replica of said multicast data packet from a second port;

means for receiving an incoming loss report message on said second port;

means for computing a loss of packets on selected ports of said router;

means for calculating, in response said loss of packets, a loss rate statistic;

transmitting an outgoing loss report message through said first port, said outgoing loss report message containing said loss rate statistic in a field of said outgoing loss report message.

24. A computer readable media having instructions written thereon for practicing the method of claim 13.

25. Electromagnetic signals carried on a computer network, said electromagnetic signals carrying instructions for practicing the method of claim 13.